When does unrelated diversification increase performance? The effects of financial context and contingencies

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Abstract

Purpose – The purpose of this paper is to examine the financial factors across multiple levels of analysis that influence the performance effects of the unrelated diversification strategy, including institutional-, industry- and firm-levels.

Design/methodology/approach – Using a unique panel dataset of Italian firms from 1980 to 2010, the paper tests hypotheses on how industry external financial dependence and the firm's financial constraints both separately and jointly alter the performance benefits of unrelated diversification in contexts with financial market inefficiencies.

Findings – Unrelated diversification increases performance in weak financial contexts and such positive effect is enhanced by greater industry external financial dependence and greater firm financial constraints. However, as financial markets develop, the moderating effects of firm financial constraints shrink.

Practical implications – The study highlights the importance of recognizing the multiple financial contingencies that may alter the benefits of the unrelated diversification strategy, suggesting caution in its pursuit to boost firm performance.

Originality/value – The authors develop a theoretical framework that explains the performance outcomes of unrelated diversification, linking the benefits of an internal capital market (ICM) with the financial context of the firm and offering a fine-grained analysis that moves beyond the advanced/emerging economy dichotomy. Furthermore, leveraging on the unprecedented time frame of the empirical analysis, the paper highlights the crucial role of industry- and firm-level financial contingencies and demonstrates that their effects change at varying levels of development of the financial context.

Keywords Unrelated diversification, Internal capital market, Weak financial markets, Industry external financial dependence, Firm financial constraints

Paper type Research paper

Introduction

Despite a considerable amount of existing research on the effects of diversification on performance (e.g. Bettis, 1981; Chakrabarti *et al.*, 2007; Christensen and Montgomery, 1981;

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Datta *et al.*, 1991; Hoskisson and Hitt, 1990; Palich *et al.*, 2000; Rumelt, 1974), recent studies (e.g. Giarratana *et al.*, 2021; Lim and Audia, 2020; Parker-Lue and Lieberman, 2020; Santalo and Becerra, 2008) have continued to provide new insights into this relationship. Extant strategy research indicates that unrelated diversification has a negative effect on performance (Ataullah *et al.*, 2014; Chatterjee and Wernerfelt, 1991; Kumar 2013; Palich *et al.*, 2000; Schommer *et al.*, 2019). However, this view has been called into question for multiple reasons. First, much of this prior research utilized samples from advanced economies, particularly U.S. firms (Benito-Osorio *et al.*, 2012). Research on emerging markets indicates that unrelated diversification is beneficial where institutional voids exist (e.g. Belenzon and Tsolmon, 2016; Khanna and Palepu, 2000; Purkayastha *et al.*, 2012; Ramaswamy *et al.*, 2017). Second, unrelated diversification may improve performance under specific conditions in advanced economies, such as the 2007–2009 financial crisis (Kuppuswamy and Villalonga, 2016) and greater competition (Ljubownikow and Ang, 2020). Thus, to better understand the performance implications of unrelated diversification, we must delve deeper into when and why such a strategy may help improve firm performance.

We explore this research question by focusing on the linkage between financial context and internal capital markets (ICMs), which represent a key theoretical foundation for unrelated diversification (Ng, 2007). A firm operating in different industries creates an ICM that can provide important benefits, including control over the firm's financial needs (Kim and McConnell, 1977; Garrido-Prada *et al.*, 2019; Lewellen, 1971) and reduction of the firm's operating risk (Aivazian *et al.*, 2019; Liebeskind, 2000; Picone and Dagnino, 2016). However, ICMs also involve increased bureaucracy and costs, as well as the potential for inefficient investment patterns and thus possible value destruction (Aktas *et al.*, 2019; Lamont, 1997; Rajan *et al.*, 2000; Rawley, 2010; Shin and Stulz, 1998).

Existing research suggests that the value of ICMs is strongly influenced by the firm's institutional environment (Purkayastha *et al.*, 2012). In countries where the institutional environment is strong, the financial markets are likely to be efficient, which entails sufficient liquidity and capital availability, high quality information, high levels of transparency and limited barriers to conducting transactions. These conditions are assumed to exist in advanced markets (Busenbark *et al.*, 2017), in which the external financial markets are likely to be as efficient, or more efficient, than ICMs. In these environments, the benefits of the ICM are more likely to be called into question (Liebeskind, 2000; Picone and Dagnino, 2016).

However, in weaker institutional environments, particularly weaker financial markets, ICMs may be more valuable for firms (Fauver *et al.*, 2003; Purkayastha *et al.*, 2012). For example, in emerging markets, key intermediary institutions, including financial intermediaries such as banks, investment advisory services and credit rating agencies, are often inefficient and underdeveloped (e.g. Chakrabarti *et al.*, 2007; Khanna and Palepu, 2000; Kock and Guillen, 2001). This creates conditions of lack of liquidity, greater information asymmetry and reduced transparency, greater financing costs and higher barriers to conducting financing transactions in financial markets, which we refer to as a weak financial context. In such a context, the ICM may be more efficient than the external financial markets to meet firm's funding needs.

These arguments suggest that the benefits of the ICM are linked to the nature of the financial context in which a firm operates (Garrido-Prada *et al.*, 2019; Kuppuswamy and Villalonga, 2016; Ljubownikow and Ang, 2020). However, key dimensions such as information asymmetry, transparency and transaction barriers vary across a range. Thus, the financial context is represented by a *continuum*, rather than by the advanced-emerging market dichotomy. Our baseline hypothesis is that unrelated diversification will increase firm performance in weaker financial contexts, i.e. where greater financial market inefficiencies and constraints exist. Furthermore, we argue that industry- and firm-level financial

contingencies may influence the value of ICMs in such contexts. Specifically, the level of industry external financial dependence, i.e. the extent to which an industry depends on external sources of financing (Belenzon *et al.*, 2013; Rajan and Zingales, 1998), alters the benefits of unrelated diversification, given that greater reliance on external funding may be very challenging and/or costly. Additionally, at the firm level, the value of the ICM for unrelated diversifiers may depend on their own level of financial constraints (Kaplan and Zingales, 1997; Kuppuswamy and Villalonga, 2016; Stein, 1997), i.e. related to the wedge between the cost of external and internal funds. We also examine the joint effects of these two financial contingencies on the unrelated diversification—performance relationship.

To test our arguments, we use a unique, hand-collected panel dataset of Italian firms from 1980 to 2010. While considered an advanced economy as part of the EU bloc, many frictions and inefficiencies characterize the Italian context, including information asymmetry and inefficient and poorly developed capital markets (Bianco and Casavola, 1999; Faccio and Lang, 2002; Staglianò *et al.*, 2014). The uniqueness of our research setting and the longitudinal nature of our analysis allow us to offer a more nuanced perspective on the contingent role of the financial market context.

Our findings contribute to diversification research, exploring how institutional, industry and firm financial contingencies shape the unrelated diversification-performance relationship. First, we explore the boundary conditions of the ICM hypothesis (Liebeskind, 2000). "Although an internal capital market argument is the leading explanation of unrelated diversification … a theory of unrelated diversification remains unclear" (Ng, 2007, p. 1483). We develop a theoretical framework that explains the performance outcomes of unrelated diversification, linking ICM benefits with the financial context of the firm. Moving beyond the advanced/emerging economy dichotomy, we offer a finer-grained analysis of the effects of institutional factors on the unrelated diversification-performance relationship. Second, we explore the contingent nature of this relationship, focusing on financial factors across multiple levels of analysis (Sengul *et al.*, 2019). Our findings highlight the crucial role of an industry's external financial dependence (Belenzon *et al.*, 2013; Kuppuswamy *et al.*, 2014) and a firm's financial constraints (Billett and Mauer, 2003)—and the interaction between the two—on the performance effects of unrelated diversification. Additionally, the unprecedented time frame covered by our analysis enables to capture how the effects of these industry- and firm-level contingencies change at varying levels of development of the financial context. These findings lend further support to our arguments linking the value of ICMs to the firm's financial context, extending the work of Kuppuswamy and Villalonga (2016), Garrido-Prada *et al.* (2019) and Aivazian *et al.* (2019) beyond macroeconomic conditions and incorporating the interplay of contextual factors. Finally, our study alerts managers about the risk of overlooking the multiple financial contingencies that may alter the benefits of the unrelated diversification strategy, suggesting caution in its pursuit to boost firm financial performance.

Theory and hypotheses

Internal capital markets, unrelated diversification and performance across varying institutional environments

The ICM is the leading explanation for unrelated diversification (Ng, 2007) and represents the foundation of our arguments. By operating in different industries, diversified firms enhance control over their financial needs (Kim and McConnell, 1977; Lewellen, 1971) and reduce the firm's operating risk (Aivazian *et al.*, 2019; Liebeskind, 2000; Picone and Dagnino, 2016). ICMs can create value due to higher financial viability (Fluck and Lynch, 1999; Liebeskind, 2000; Stein, 1997) and improved capital allocation processes (Strauch *et al.*, 2019). More recently, scholars have shown that during economic recessions the relative benefits of the ICM increase for firms (Kuppuswamy and Villalonga, 2016; Volkov and Smith, 2015).

A primary role of the ICM is funding. Firms require capital to fund existing operations as well as growth opportunities. Diversified firms often face greater capital requirements since each business needs funding for existing operations, to pay down associated liabilities and debt and to fund investment opportunities, as well as to enter new businesses (Lewellen, 1971). One funding option is for the firm to tap the external financial markets through lines of credit, long-term debt and/or new equity issues. Such external financing transactions involve associated costs, i.e. registration and filing, advisory services, underwriting, etc. In addition, the firm incurs the financing costs in the form of interest and/or dividends, which vary based on the firm's financial health the current conditions in the financial markets.

Alternatively, the firm may utilize internally generated capital to fund operations and growth, i.e. the ICM (Lamont, 1997). Corporate headquarters manages the cash flow needs of its businesses, reinvesting and/or reallocating capital as needed across its portfolio of businesses (Alchian, 1969). This allows the firm to avoid the transaction costs of the external markets and possibly the financing costs as well. However, ICMs generate costs of their own in the form of increased bureaucracy and its associated monetary costs (Rawley, 2010), as well as the potential for inefficient allocation of capital (Aktas *et al.*, 2019; Lamont, 1997; Rajan *et al.*, 2000; Shin and Stulz, 1998).

Firms must weigh the costs and benefits of external versus internal financing. Such assessment is affected by the level of development of the institutional environment, of which the financial markets, particularly the capital market, represents one of the most critical dimensions (Chittoor *et al.*, 2015; Khanna and Palepu, 2000). In developed economies, financial markets are assumed to be efficient (Busenbark *et al.*, 2017), since sufficient market liquidity, high levels of transparency and reduced barriers to transactions characterize the institutional environment. In such a context, capital is likely to be available at reasonable costs to the firm, and the associated transaction costs for external funding are relatively low. The external capital markets may thus be more efficient than ICMs (Liebeskind, 2000; Picone and Dagnino, 2016). Yet, in institutionally weak environments, where conditions arise that threaten this efficiency, internal markets may become more valuable for diversified firms (Cainelli and Iacobucci, 2011; Kuppuswamy and Villalonga, 2016).

Existing research on emerging markets offers insights into contexts where intermediate institutions, such as market and financial institutions, are both inefficient and underdeveloped (Chakrabarti *et al.*, 2007; Khanna and Palepu, 2000; Khanna and Rivkin, 2001; Kock and Guillen, 2001; Purkayastha *et al.*, 2012). For example, independent credit rating firms may be unreliable and/or transaction clearinghouses that play a key role in facilitating market transactions may be inefficient or less developed. Alternatively, a weak banking system and/or less liquid stock market may constrain the amount of capital available. Under such conditions, which we refer to as a weak financial context, the cost of external financing is likely to be greater and firms may face challenges reducing the information asymmetry between itself and investors due to the weaker presence of key financial intermediaries (Cuadrado-Ballesteros *et al.*, 2016). In such environments, firms may diversify to create internal markets, which are likely to be more efficient than external markets (Belenzon *et al.*, 2013; Fauver *et al.*, 2003; Kuppuswamy *et al.*, 2014). This evidence suggests that the benefits of an ICM are subject to several contingencies (e.g. Chakrabarti *et al.*, 2007; Ramaswamy *et al.*, 2017). A deeper understanding of the unrelated diversification-performance link therefore requires an analysis of the boundary conditions of the ICM hypothesis.

Unrelated diversification and the performance effects of a weak financial context

Diversification, particularly unrelated diversification, can represent a response to institutional weaknesses (Peng *et al.*, 2005; Khanna and Palepu, 1997). To overcome the limited availability of external funding and/or the costlier funding due to financial market

inefficiencies, firms may replace external markets with internal ones (Belenzon and Tsolmon, 2016; Khanna and Palepu, 1997, 2000; Ng, 2007), internalizing intermediate functions that should be provided by institutions and markets (Chakrabarti *et al.*, 2007).

The creation of an ICM through unrelated diversification allows for a more efficient mechanism to allocate money across different divisions compared with such external market mechanisms (Benito-Osorio *et al.*, 2012; Doukas and Kan, 2008; Liebeskind, 2000; Strauch *et al.*, 2019). By possessing a portfolio of businesses, the firm is able to generate additional internal capital that can be re-allocated towards the best opportunities, without having to depend on the external market for such funding. Thus, in a context of financial weakness, i.e. in the presence of significant external capital market inefficiency (Belenzon *et al.*, 2013; Fauver *et al.*, 2003; Kuppuswamy *et al.*, 2014) or lack of external funding availability (Kuppuswamy and Villalonga, 2016; Garrido-Prada *et al.*, 2019), an ICM enables a firm to avoid the transaction costs, financial constraint issues and information asymmetry costs that are typically associated with external financing (Doukas and Kan, 2008; Khanna and Palepu, 1997, 2000). Under these conditions, the ICMs of diversified firms increased in value, providing firms with funding for projects that would have otherwise gone unfunded.

Thus, our baseline hypothesis is that the advantages of unrelated diversification will be greater in weaker financial contexts due to the benefits of the ICM, resulting in higher firm performance.

Baseline hypothesis. In a financially weak context, there will be a positive relationship between unrelated diversification and performance.

The moderating role of an industry's external financial dependence

Beyond the institutional environment, a number of additional external factors shape a firm's corporate strategy and performance. For instance, strategy scholars have analyzed the link between diversification and sectoral conditions such as industry maturity (Levinthal and Wu, 2010) and industry dynamics (Wu, 2013). Trajectories of technological innovation and market dynamism have also been found to shape the direction and effects of corporate diversification (Kim and Kogut, 1996; Stern and Henderson, 2004; Pan *et al.*, 2018). Building on the argument that the effect of diversification on performance depends on the intrinsic characteristics of each industry, Santalo and Becerra (2008) show that diversified firms perform better in industries with a small number of specialized, nondiversified competitors (or, equivalently, when specialized firms have a small combined market share), whereas they perform worse in industries with a high number of specialized firms (or when specialized firms have a higher market share). Extending this line of research, we posit that industry characteristics may alter the unrelated diversification-performance link to the extent that they affect a firm's financing activities.

Firms within a particular industry tend to adopt similar financing patterns, such as leverage ratios. Yet, firms may exhibit differences across industries. Analyzing 36 industries across 41 countries, Rajan and Zingales (1998) show that industries significantly differ from one another in terms of their degree of dependence on external sources of financing. Differences in external financial dependence may be due to technological differences (Belenzon *et al.*, 2013; Rajan and Zingales, 1998) investment-related factors, such as project scale, the gestation period, the cash-harvest period and the need for further investment (Cetorelli and Strahan, 2006). These differences persist across countries and over time (Beck and Levine, 2002).

We argue that differences in an industry's external financial dependence also affect the outcomes of an unrelated diversification strategy. *Ceteris paribus*, the greater an industry's external financial dependence, the larger a firm's financial need (Cetorelli and Strahan, 2006). Since more efficient financial markets facilitate firms in obtaining the necessary capital for their businesses, industries that are more reliant on external financing benefit more from a better-developed financial system than industries that do not heavily rely on external financing (Rajan and Zingales, 1998).

However, in weak financial contexts, characterized by imperfections and inefficiencies, a heavy reliance on external funding would be problematic, given the greater challenges and costs associated with obtaining capital on the market. Hence, an industry's external financial dependence might dictate a greater need for unrelated diversification because of the benefits of ICMs (Belenzon *et al.*, 2013). Indeed, ICMs may relieve the constraints related to an industry's greater external financial dependence, enabling unrelated diversifiers to fund investment opportunities that might remain unexploited if the business units were standalone firms (Kuppuswamy *et al.*, 2014). In contrast, for industries with lower external financial dependence, the benefits of the ICM on performance may not be as pronounced.

Thus, the benefits of ICMs are magnified in industries characterized by high external financial dependence, whereas they are attenuated in industries characterized by low external financial dependence. Stated formally,

H1. In a financially weak context, an industry's external financial dependence moderates the relationship between unrelated diversification and firm performance: the benefits of unrelated diversification are greater for firms in industries with high external financial dependence.

The moderating role of a firm's financial constraints

The value of an unrelated diversification strategy can be also shaped by the firm's own financial condition. One key firm-specific factor that may impact the effectiveness of a firm's diversification strategy is the degree to which a firm faces financial constraints (Billett and Mauer, 2003), defined as challenges or limitations on the firm's ability to raise capital, independent of the firm's industry. Given that frictions exist in the capital markets, such as asymmetric information and transaction costs, the external financial markets may not be able to understand or appreciate the effective value of corporate projects. Managers have access to more information about the firm's opportunities that is not available to the public. Such information asymmetry potentially reduces the availability of, and/or drives up the cost of, external funding (Cuadrado-Ballesteros *et al.*, 2016).

The existence of internal cash sources through the ICM, will allow unrelated diversified pursuing growth strategies without relying on the external capital markets as much. By combining the cash flows of unrelated divisions, ICMs may reduce the effects of financial constraints that are produced, for example, by excess debt (Campello, 2002; Stein, 1997). The mutual financial support among a firm's business units that is associated with unrelated diversification enables a reduction in the firm's operating risk and cost of capital (e.g. Almeida and Philippon, 2007; Kim and McConnell, 1977; Lewellen, 1971; Singh *et al.*, 2004). This reasoning constitutes the coinsurance explanation for corporate diversification (Benito-Osorio *et al.*, 2012). Operating in multiple businesses that are not directly linked with each other increases the firm's ability to reliably meet its financial needs. This is particularly important in weak financial contexts, where less efficient financial intermediaries, potential lack of sufficient available capital, and higher transaction costs increase market frictions.

In contrast, *ceteris paribus*, a stand-alone firm will be more severely financially constrained than a multi-business company (Billett and Mauer, 2003). The need for external financing for firms without such internal cash sources from unrelated diversification may force the firm to either forego an investment opportunity and/or pay more for capital (Kaplan and Zingales, 1997). Thus, we hypothesize the following:

H2. In a financially weak context, firm financial constraints moderate the relationship between unrelated diversification and performance: the benefits of unrelated diversification are greater for more financially constrained firms.

The interaction effect between a firm's financial constraints and an industry's external financial dependence

The moderating roles of industry external financial dependence and firm financial constraints may have a joint effect as well. Differences across industries in terms of dependence on external financing may alter the extent to which firms are affected by their financial constraints (Rajan and Zingales, 1998). Firms that operate in industries that are heavily dependent on external financing are at greater risk to miss investment opportunities because of the lack of sufficient financial resources (Cetorelli and Strahan, 2006). We argue that this risk is magnified if the firm itself faces significant financial constraints. In this instance, the firm is more likely to need to seek external funding, yet it is constrained in its ability to raise such funds. Thus, these industry characteristics appear to exacerbate the problems related to a firm's financial constraints, making it more likely that the firm will miss growth opportunities. In contrast, firms that face similar financial constraints but operate in industries with lower levels of external financial dependence (Rajan and Zingales, 1998) are less likely to have to forego investment opportunities. These firms may face challenges raising capital, but are also less likely to need to do so.

Unrelated diversifiers are affected by an industry's external dependence on financing, but to a lesser extent than standalone firms (Billett and Mauer, 2003). Through the ICM, unrelated diversifiers may counterbalance their financial constraints to the extent that they allocate funds to business units that exhibit investment opportunities despite a lack of sufficient self-generated funds (Fauver *et al.*, 2003; Picone and Dagnino, 2016; Liebeskind, 2000; Stein, 1997; Billett and Mauer, 2003). This exploitation of financial synergies across businesses will be more beneficial for financially constrained firms that operate in industries that are heavily dependent on external financing for their investment needs. In contrast, the effects of firm financial constraints on the unrelated diversification—performance linkage will be relatively lower in industries that do not depend heavily on external financing. Thus, we contend that firm financial constraints positively moderate the effect of unrelated diversification on performance, especially for firms that operate in industries that are strongly dependent on external capital. These arguments suggest the following hypothesis:

H3. In a financially weak context, the positive moderating role of firm financial constraints on the relationship between unrelated diversification and performance will be stronger in industries that are highly dependent on external financing.

Methods

Research setting

Despite the fact that Italy is considered an advanced economy, its capital markets and financial system are relatively undeveloped compared to the US and other large European countries (Stagliano *et al.*, 2014). First, the number of listed firms is relatively small when compared to countries with a similar GDP (Carpenter and Rondi, 2000). Using data from the World Bank Global Financial Development database, Figure 1 shows that Italy has ranked among the lowest in terms of the number of listed companies (per 1 million people) relative to some of its EU counterparts. Moreover, the ratio of average stock market capitalization to GDP from 1989 to 2010 in Italy is 31.66, while France (58.98) and Spain (57.71) are almost double Italy's level, and the UK is over three times that of Italy (111.64). Second, in Figure 2 we can see that Italy has the lowest ratio of domestic credit to country GDP relative to the other developed economies, indicating that Italian firms may face issues related to accessing credit.

Third, given the weaker capital markets and limited domestic credit, it is likely that Italian firms face relatively greater financial constraints and difficulties to access credit, as confirmed by the survey "European Firms in a Global Economy" (EFIGE) offering

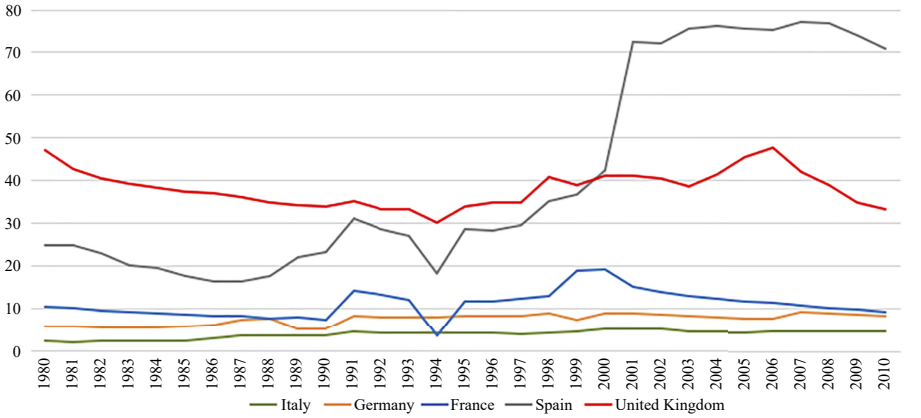

Figure 1.
Number of listed companies (per 1 million people)

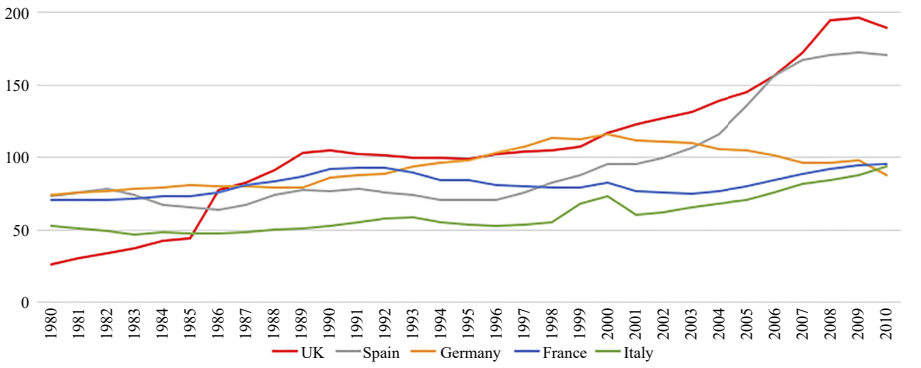

Figure 2.
Comparison of domestic credit to GDP

comparative data on European manufacturing firms (for details see Altomonte and Aquilante, 2012). Specifically, one question in the EFIGE survey asks if the firm experienced financial constraints: 31% of Italian firms were unsuccessful when asking for credit, which is lower than in France (19%), Germany (12%) and UK (2%) (a graph is presented in Appendix 1).

Finally, in the 2015 Doing Business Report by the World Bank, Italy is ranked 89 (out of 189 economies) in the area titled "ease of getting credit", placing Italy equal with Turkey and lower than Cyprus and Croatia (both ranked #61), which entered the EU more recently. Italy's ranking is far below other advanced European economies, such as Germany (#23), Spain (#52) and the United Kingdom (#17).

These characteristics indicate that Italy represents a financially weak context. The uniqueness of this country environment underscores the need to move beyond the conventional advanced/emerging categorization and consider the specific financial contexts in which firms operate.

Sample and data

The starting point for the construction of the dataset was the Mediobanca – Ricerche & Studi (Ric&St) Annual Directory, which contains data on primarily larger Italian companies.

We compiled a database of Italian firms from paper-based Ric&St reports from 1980 to 2002 and from electronic files from 2002 to 2010. We consider non-financial companies only. The focus on non-financial firms is consistent with prior studies on diversification (e.g. Aivazian *et al.*, 2019; Billett and Mauer, 2003; Kuppuswamy and Villalonga, 2016; Villalonga, 2004) given that comparing the performance of financial institutions with firms from other industries can be problematic (Arrfelt *et al.*, 2013; McGahan and Porter, 1997). To minimize the risk of errors, especially in the identification of business segments and measurement of unrelated diversification, each report was examined independently from two coders. Their task was to associate the description of firm business(es) to the industry codes. Specifically, we relied on the Italian classification codes (ATECO), similar to SIC codes, to identify industry segments. Such association was straightforward in the vast majority of cases. Disagreements were minimal and, if they persisted after the cases were jointly discussed by the two coders, a third coder was involved. The sample represents an unbalanced panel, consisting of 230 listed and unlisted non-financial Italian firms over 31 years (1980–2010), leading to 2,417 firm-year observations. The average number of firms for each year (number of unrelated diversified firms in parentheses) is 78 (23), ranging from a minimum of 48 (16) for 2002 to 112 (30) for 2007. Data on yearly distribution of sample firms are available in Appendix 2.

Variables and measures

Dependent variable: firm performance. Since the stock market is not an important source of financing in Italy, we rely on an accounting-based, rather than a market-based, measure of performance (Palich *et al.*, 2000; Singh *et al.*, 2007; Wan and Hoskisson, 2003). We use return on assets (ROA) to measure *Firm performance*, i.e. the ratio of EBITDA (annual earnings before interest and taxes plus depreciation and amortization) to total assets. The choice of ROA as our measure of firm performance corresponds to other diversification research (e.g. Bettis, 1981; Chakrabarti *et al.*, 2007; Lim and Audia, 2020; Palich *et al.*, 2000). In addition, because of the presence of unlisted firm in our sample, the use of market-based performance was not a feasible choice and relying on accounting-based measures of performance was a necessity.

Independent and moderating variables. Unrelated diversification is measured using an entropy measure (Jacquemin and Berry, 1979; Palepu, 1985) that considers the similarity across business segments. The entropy measure is calculated as follows:

$$\sum_{i=1}^{n}\left[p_i \ln\left({}^{1}/_{p_i}\right)\right]$$

where p_{ii} is the percentage of sales in the two-digit industry group I, n is the number of two-digit industry groups in which the firm operates and $\left({}^{1}/_{p_i}\right)$ is the weight given to each industry.

To measure the *Industry external financial dependence*, we followed Rajan and Zingales (1998), considering the extent to which cash flow generated by operational activities is sufficient to cover investment. Specifically, we calculated the industry external financial dependence index as the median value of the difference between capital expenditures (capex) and cash flow from operations, scaled by capital expenditures, for all firms in the same industry. For diversified firms, the industry external financial dependence measure was calculated as the weighted average of this external finance dependence index for all industries in which the firm is active. The weights were given by the percentage of firm sales in each industry. As suggested by Cetorelli and Strahan (2006), if capex is higher than cash flow from operations, there is a need to raise additional capital to finance investments.

Our measure of *Financial constraints* weighs multiple indicators in a sort of z-score formula, which is stronger than a single measure. Specifically, we used the index of financial constraints developed by Whited and Wu (2006), which is based on the following formula:

$$\text{WW index} = -0.091 \times \text{CF} - 0.062 \times \text{DIVPOS} + 0.021 \times \text{TLTD} - 0.044 \times \text{LNTA} + 0.102 \times \text{ISG} - 0.035 \times \text{SG}$$

where CF is the ratio of cash flow to total assets, DIVPOS is an indicator that takes the value of one if the firm pays cash dividends, TLTD is the ratio of long-term debt to total assets, LNTA is the natural log of total assets, ISG is the firm's two-digit industry sales growth, and SG is firm sales growth. By its construction, this index is higher for more financially constrained firms.

Control variables. We control for a number of factors affecting firm performance to isolate the effects of our focal variables. The binary variable *Listing* controls for the difference between listed and unlisted companies (1 if the company is listed on the stock market and 0 otherwise). *Ownership concentration* was measured by the percentage of equity shares held by the largest shareholder. *Firm size* was measured by the natural logarithm of the book value of total assets. The mean firm size reported is 20.40, which is log-transformed. This equates to average total assets of 723 million euros. Though focused on larger firms, our dataset includes firms ranging in size from a 5th percentile of 61 million euros, to a 95th percentile of 10 billion euros, with a median of 692 million euros.

The industry average for annual percentage change in sales was used as a proxy for *Industry growth opportunity*. We also control for *Tangibility*, which was measured as the ratio of property, plants and equipment to total assets. *Leverage* was measured as the ratio of a firm's total financial debt to its total financial debt plus equity. In addition, we control for changes in economic activity in Italy, measured by *GDP* (log-transformed). Since inefficiencies in the capital market and inefficiencies in the labor market have been considered two major institutional weaknesses that may explain the advantages associated with a firm's internal market (Belenzon and Tsolmon, 2016), we control for the country's rate of *Unemployment* in each year included in the analysis. The source for data on GDP and unemployment is World Bank Indicators (WDI).

Estimation method

Hausman tests yielded statistically significant results, suggesting that fixed-effect models were more appropriate than random-effects models for our data. In line with Gormley and Matsa (2014), who highlight the risk of inconsistent estimates and distorted inference associated with apparently more sophisticated empirical methods, our analysis is based on fixed-effects estimators with robust standard errors (Cameron and Trivedi, 2009). However, to assess the robustness of our findings and properly keep into account changes across the 31-year time frame, we also conducted our analysis using a random-effects model. To ensure that our results are not biased by potential outliers, we winsorized our variables at the first and last percentile. To test Hypothesis 3, we rely on a sub-group analysis, i.e. on sub-samples of high versus low levels of industry external financial dependence, based on two different approaches to create sub-samples: the first and fourth quartile and first and third tertile.

Results

Table 1 presents the descriptive statistics and correlations for our variables. Table 1 does not show particularly high correlations. We assessed the potential multicollinearity among the independent variables using variance inflation factors (VIFs). The average VIF is 1.68 (max VIF = 3.51), which is below the generally employed cut-off of 10 (or, more cautiously, 5) for regression models, suggesting that multicollinearity does not affect our results.

Table 1.
Descriptive statistics and correlation matrix

	Variables	Mean	Std.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1.	Firm Performance	0.07	0.08	1.00										
2.	Unrelated Diversification	0.19	0.35	−0.03	1.00									
3.	Industry External Financial Dep.	−0.31	0.35	−0.07	−0.37	1.00								
4.	Financial Constraints	−0.15	0.02	−0.39	0.05	0.06	1.00							
5.	Listing	0.40	0.49	−0.00	0.05	0.02	−0.00	1.00						
6.	Ownership Concentration	0.65	0.26	−0.03	−0.03	−0.02	0.02	−0.48	1.00					
7.	Firm size	20.40	1.48	0.01	0.19	−0.25	−0.00	0.21	−0.10	1.00				
8.	Industry Growth Opportunity	0.09	0.02	−0.01	0.10	−0.06	−0.22	0.05	−0.02	0.2	1.00			
9.	Tangibility	0.37	0.17	−0.07	0.07	−0.03	0.11	0.26	−0.15	0.33	−0.00	1.00		
10.	Leverage	0.44	0.23	−0.28	0.09	0.22	0.04	−0.01	0.00	0.19	0.12	0.00	1.00	
11.	GDP	27.71	0.52	0.10	0.02	−0.06	−0.11	0.11	−0.06	0.56	0.10	0.26	−0.07	1.00
12.	Unemployment	0.10	0.03	−0.06	−0.00	0.05	0.09	−0.11	0.04	−0.38	−0.09	−0.20	0.09	−0.65

Note(s):
- $N = 2{,}417$
- Industry dummies are not reported
- Correlations greater than 0.03 or lower than −0.03 are statistically significant at the 0.05 level or lower

Table 2 shows the parameter estimations for Hypotheses 1 and 2. Column 1 shows the regression analysis with only control variables. Column 2 incorporates the main effect of unrelated diversification, which increased the *R*-squared (from 9.8% to 21.4%). The positive and statistically significant effect across all of the models ($p = 0.009$ in column 2, $p < 0.001$ in columns 3–5) indicates support for our baseline hypothesis. It appears that unrelated diversification provides important performance benefits to firms operating in the financially weak context of Italy.

In columns 3 and 4, the interaction terms of our moderators with the unrelated diversification variable are separately added. Finally, column 5 displays the full model with all the interaction terms. The estimated direction and significance of each moderating variable is consistent across these models.

The coefficient of the interaction term *Unrelated diversification* × *Industry external financial dependence* is positive and statistically significant ($p = 0.010$) in column 5 of Table 2. Thus, Hypothesis 1 receives support. It appears that the performance-enhancing benefits of unrelated diversification are stronger for industries with greater reliance on external

Econometric model	(1) Fixed effects	(2) Fixed effects	(3) Fixed effects	(4) Fixed effects	(5) Fixed effects	(6) Random effects
Unrelated diversification		0.02***	0.14***	0.04***	0.15***	0.14***
		(0.01)	(0.02)	(0.01)	(0.02)	(0.02)
Unrelated divers. × Industry ext. fin. dep.			0.04***		0.04***	0.03**
			(0.01)		(0.01)	(0.01)
Unrelated divers. × Fin. constraints				0.84***	0.81***	0.79***
				(0.15)	(0.15)	(0.14)
Financial constraints		−1.19***	−1.44***	−1.20***	−1.44***	−1.48***
		(0.07)	(0.08)	(0.07)	(0.08)	(0.08)
Industry external financial dependence		−0.004	−0.003	−0.02*	−0.01	−0.01
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Listing	−0.01	−0.01	−0.01	−0.01	−0.01	−0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
Ownership concentration	−0.01	−0.01	−0.01	−0.01	−0.01	−0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Firm size	−0.01***	−0.02***	−0.02***	−0.02***	−0.02***	−0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Industry growth opportunity	0.61***	0.42***	0.45***	0.40***	0.43***	0.39***
	(0.16)	(0.15)	(0.15)	(0.15)	(0.15)	(0.13)
Tangibility	−0.05***	−0.04***	−0.04***	−0.04***	−0.04***	−0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Leverage	−0.08***	−0.05***	−0.05***	−0.05***	−0.05***	−0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
GDP	−0.00	0.01**	0.01**	0.01**	0.01**	0.01**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Unemployment	0.04	0.04	0.02	0.03	0.02	0.02
	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Constant	0.34***	−0.01	−0.04	−0.01	−0.04	−0.12
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.09)
Observations	2,417	2,417	2,417	2,417	2,417	2,417
R-squared	0.10	0.21	0.23	0.22	0.23	0.23
Number of id	230	230	230	230	230	230
Industry Fixed Effects	NO	NO	NO	NO	NO	NO

Note(s): Standard errors in parentheses; the superscripts ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively

Table 2.
Effect of unrelated diversification on firm performance: regression results

financing. A one-standard-deviation increase in the interaction term is associated with 8.4% increase in firm performance, showing a small but meaningful magnitude according to the rule of thumb proposed by Cohen (1988).

The coefficient of the interaction term *Unrelated diversification* × *Financial constraints* is also positive and statistically significant ($p < 0.001$) in column 5, supporting Hypothesis 2. For firms facing higher financial constraints the positive effect of unrelated diversification strategies is amplified. In particular, one-standard-deviation increase in the interaction term is associated with 55% increase in firm performance. We graph the interaction effects to better interpret our findings. Figures 3 and 4 provide a visual confirmation of the prediction of Hypotheses 2 and 3 on the contingency roles of industry external financial dependence and firm financial constraints.

Finally, to demonstrate the robustness of our findings, column 6 of Table 2 reports the results from the random-effects model for the full model. These results are consistent with those from the fixed effects model.

Sub-sample analyses

Hypothesis 3 examines the varying positive moderating effects of firm financial constraints across different levels of industry external financial dependence. To test Hypothesis 3, two sub-samples are defined based on low/high levels of industry external financial dependence, measured by the quartile or tertile values. In Table 3, the regression results on these subsamples are presented. Columns 1 and 2 show the results on the subgroups identified by the first and forth quartile, whereas in columns 3 and 4 the subgroups correspond to the first and third tertile of our sample.

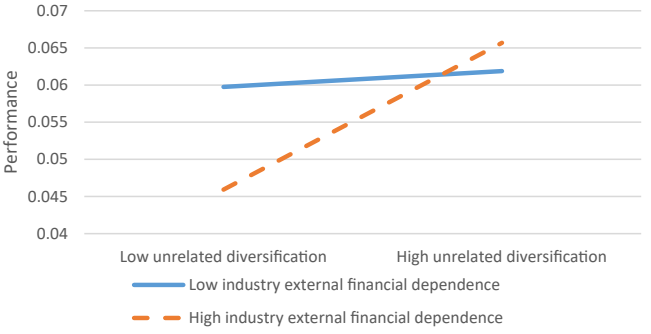

Figure 3.
Moderating effect of industry external financial dependence on the relationship between unrelated diversification and performance

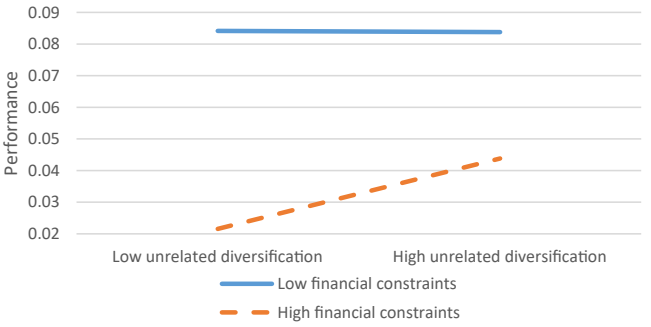

Figure 4.
Moderating effect of firm financial constraints on the relationship between unrelated diversification and performance

Table 3.
Sub-group analysis: The effect of unrelated diversification on firm performance conditioned by industry external financial dependence

	(1)	(2)	(3)	(4)
	Sub-groups based on 25 and 75% values as cutoffs		Sub-groups based on 33 and 66% values as cutoffs	
	Low industry external financial dependence	High industry external financial dependence	Low industry external financial dependence	High industry external financial dependence
Unrelated diversification	0.053 (0.049)	0.201*** (0.037)	0.057 (0.037)	0.196*** (0.036)
Unrelated divers. × Fin. constraint	0.464 (0.321)	1.194*** (0.261)	0.458* (0.241)	1.160*** (0.259)
Financial constraint	−1.402*** (0.163)	−1.536*** (0.156)	−1.325*** (0.128)	−1.551*** (0.154)
Listing	−0.008 (0.010)	−0.009 (0.011)	−0.004 (0.008)	−0.009 (0.011)
Ownership concentration	0.003 (0.012)	−0.008 (0.012)	0.007 (0.009)	−0.008 (0.012)
Size	−0.030*** (0.005)	−0.007 (0.005)	−0.032*** (0.004)	−0.007 (0.005)
Industry growth opportunity	1.002*** (0.324)	0.256 (0.337)	1.039*** (0.236)	0.259 (0.338)
Tangibility	−0.066*** (0.025)	−0.055** (0.022)	−0.023 (0.017)	−0.061*** (0.022)
Leverage	−0.042*** (0.014)	−0.078*** (0.012)	−0.042*** (0.011)	−0.077*** (0.012)
GDP	0.025*** (0.009)	−0.016* (0.008)	0.028*** (0.007)	−0.016* (0.008)
Unemployment	0.027 (0.105)	−0.072 (0.081)	0.060 (0.072)	−0.069 (0.080)
Constant	−0.282 (0.214)	0.471** (0.183)	−0.349** (0.154)	0.455** (0.182)
Observations	606	762	958	768
R-squared	0.234	0.256	0.247	0.264
Number of id	74	82	106	84
Industry Fixed Effects	NO	NO	NO	NO

Note(s): Standard errors in parentheses; the superscripts ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively

The results provide support for Hypothesis 3: the coefficient for the interaction term *Unrelated diversification* × *Financial constraints* is positive and statistically significant ($p < 0.001$) in column 2 for high levels of industry external financial dependence, while it is not significant ($p = 0.149$) in column 1 for low industry external financial dependence. The difference between these two coefficients is significant, with an F-statistic of 13.62 ($p < 0.001$). Thus, Hypothesis 3 is supported. Our interpretation of the interaction effects is visually confirmed by figures showing performance for different levels of unrelated diversification of firms with low versus high financial constraints in low versus high industry external financial dependence. Due to space limitations, these plots are not reported, but are available upon request. Results of the analysis using the tertile values as cutoffs (columns 3 and 4) offer consistent results. Indeed, the difference between the coefficients of the interaction term *Unrelated diversification* × *Financial constraints* is significant, with an *F*-statistic of 8.89 ($p = 0.002$). Similar patterns of findings also emerge using the median value as cutoff (tables are available upon request).

Robustness analyses

To assess the robustness of our results, we performed three additional sets of analyses. First, we employed alternative measures of key variables, including: (1) binary, instead of continuous, variables for industry external financial dependence and firm financial constraints, based on the last quartiles to capture high levels of our moderators; (2) an alternative continuous measure of Industry external financial dependence—the Rajan and Zingales (1998) index (RZ), based on US large-company data; (3) two alternative firm-level financial constraint measures: the Kaplan and Zingales (1997) index and the Hadlock and Pierce (2010) index; (4) Concerning our analyses to test Hypothesis 3, we also used the RZ index was to define the two subsamples for low versus high industry external financial dependence; (5) we run the models using time fixed effects (year dummies) instead of the GDP variable and industry dummies and firm sales growth instead of industry-adjusted growth opportunity (sales growth). The results of these multiple analyses were similar to those presented in Tables 2 and 3, suggesting the findings are robust to the use of different measures of the moderating variables. Furthermore, we verify that our results in Tables 2 and 3 still hold even when outliers are included in the models.

Second, to explore how conditions of supply-side financial constraints or abundance may alter the effects of ICM, we tested two additional models. The first one is a model in which, beyond all the variables in Table 2, a further variable labelled "crisis" is added, taking the value of 1 for years 2008–2010 and 0 otherwise, to control for the effect of the 2008 crisis that resulted in conditions of severe financial constraints. The second model is the same presented in Table 2 of the manuscript, but the analysis is performed on the subsample of firms/observations until 2007, i.e. excluding the crisis times typically associated with 2008–10 the patterns of findings are similar to those presented in Table 2 of the manuscript. Due to space limitations, the results of these first two sets of analysis are not included in the paper, but are available upon request.

Third, scholars have identified concerns about the causal relationship between performance and diversification (Campa and Kedia, 2002; He, 2009; Villalonga, 2004). Similar to Dagnino *et al.* (2018), we explored the endogeneity issue applying various approaches, including: (1) the use of lagged explanatory variables, (2) an instrumental variable (IV) approach (2SLS), (3) a 3SLS approach (simultaneous equations) and (4) a system GMM model (Bascle, 2008; Hamilton and Nickerson, 2003). We also applied the Heckman approach. The results are detailed in Table 4 below.

Model 1 employs one-year lags of all the explanatory variables. Model 2 involves an IV approach using the 2SLS approach. Similarly, to Campa and Kedia (2002), we used industry and time variables as instruments, which showed the desirable properties for an IV approach: they were statistically significant in the first stage; the Sargan test was not significant, thus indicating that instruments are exogenous. In Model 3, we explicitly considered the potential reciprocal

	(1) Lag of explanatory variables	(2) 2SLS	(3) 3SLS	(4) GMM	(5) Heckman model
Firm performance (lag)				0.41***	
				(0.01)	
Unrelated diversification	0.13***	0.71***	0.61***	0.25***	0.12***
	(0.03)	(0.27)	(0.12)	(0.02)	(0.05)
Unrelated divers. × Fin. constraint	0.69***	5.06**	3.41***	1.68***	0.60**
	(0.16)	(1.98)	(0.76)	(0.12)	(0.30)
Unrelated divers. × Industry ext. fin. depend.	0.04**	0.10*	0.05***	0.06***	0.06**
	(0.02)	(0.06)	(0.02)	(0.02)	(0.02)
Financial constraint	−0.97***	−3.13***	−4.44***	−2.05***	−1.66***
	(0.09)	(0.68)	(0.44)	(0.05)	(0.25)
Industry ext. financial dep.	−0.04***	−0.03	−0.00	−0.03***	−0.04**
	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)
Listing	−0.00	−0.01	−0.00	−0.02***	−0.03***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
Ownership concentration	−0.01**	0.00	−0.02***	−0.07***	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Firm size	−0.01***	−0.02***	−0.02***	−0.00	−0.01****
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Industry growth opportunity	0.45***	0.59***	−0.21**	−0.06	−0.23
	(0.16)	(0.20)	(0.08)	(0.07)	(0.15)
Tangibility	−0.02	−0.05***	−0.04***	−0.05***	0.01
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
Leverage	−0.03***	−0.03***	−0.03**	−0.08***	−0.11***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
GDP	−0.00	0.01**	0.03***	−0.00	0.02**
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)
Unemployment	−0.10**	−0.08	−0.01	−0.06***	0.06
	(0.05)	(0.07)	(0.07)	(0.02)	(0.11)
Constant	0.17		−1.01***	−0.15***	−0.40*
	(0.11)		(0.13)	(0.04)	(0.22)
Observations	2,101	2,089	2,256	1,975	2,399
R-squared	0.11	0.04	0.07		
χ^2			1091.93		321.37
Sargan test (p-value)		0.539			
AR(2) (p-value)				0.496	
Industry Fixed Effects	NO	NO	NO	NO	NO

Note(s): Model (1) uses the one-year lag of all the explanatory variables. Model (2) uses an instrumental variables (IV) technique through the 2SLS approach. Model (3) involves a simultaneous system of equations model (3SLS) approach with two equations is applied, using firm performance and unrelated diversification respectively, as the dependent variables. Model (4) utilizes an IV approach using the GMM estimator. Finally, in Model (5) we test for sample selection bias using the Heckman technique. Standard errors in parentheses

Table 4.
Robustness tests examining potential effects of endogeneity

(reverse) relationships between unrelated diversification and firm performance using a simultaneous equation model (three-stage least squares – 3SLS) (Greene, 2003) with two equations, using diversification and ROA, respectively considered as dependent variables. The model fit statistics represent strong explanatory power, with significant chi-square values (chi-square = 1091.9 and $p < 0.001$). In Model 4, we performed a generalized method of moments (GMM) model, using the same instruments used for the 2SLS jointly with lags for the dependent variable from two to five years in the GMM style. Finally, in Model 5, we control for the self-selection of firms that diversify using Heckman's (1979) two-stage procedure as in Campa and

Kedia (2002). The results of all these robustness analyses are consistent with our main findings in Model 5 of Table 2. Further details related to these robustness tests are available from the authors.

Supplementary analysis: examining changes to Italy's financial context

As Figures 1 and 2 show, Italy's financial markets appear relative weak compared to other EU countries throughout the sampling period. However, as one might expect, Italy's markets did experience some degree of development. Thus, we explored how such development impacted our findings.

Capital market development can reflect the development of a country's banking systems and stock markets. Considering that Italy is a bank-based country, we use the ratio of "private credit by deposit money banks and other financial institutions" to GDP (Demirguc-Kunt and Levine, 2004) to measure capital market development. The source for this data is the World Bank. We split the sample into low versus high capital market development based on the first and last quartile of this measure and then repeated our analyses. Due to space limitations, we do not provide the details of this analysis here, but they are available upon request.

Unrelated diversification has a positive ($p = 0.001$) effect on firm performance in the bottom quartile of capital development, while the effect of unrelated diversification on performance is not significant in the top quartile of capital market development. The coefficient for the interaction term *Unrelated diversification*Industry external financial dependence* is not significant for either the top or bottom quartile, indicating no significant differences. In terms of the moderating effects of *Financial constraints*, the coefficient is positive and significant ($p = 0.001$) at low levels of capital market development, while it is not significant at the high level of capital market development.

Ultimately, as the capital markets develop, the performance benefits of unrelated diversification appear to decline to some extent. Furthermore, the effects of firm financial constraints also are reduced, suggesting that firms are able to tap into the stronger external financial markets to address its financial needs. The findings of this supplementary analysis provide further support for our core arguments related to the linkage between the value of ICMs and the nature of the financial context.

Discussion

Our arguments link the effects of unrelated diversification on performance to the firm's financial context, as well as the financial needs and challenges the firm is facing. Evidence from our analyses indicates that unrelated diversifiers are better off in financially weak contexts, yet the advantages of unrelated diversification are contingent upon an industry's external financial dependence and a firm's financial constraints. Our findings are especially noteworthy because they help identify the industry- and firm-level financial moderators of the performance effects of unrelated diversification. Furthermore, the performance benefits of unrelated diversification and the contingent effects of financial constraints are reduced as the capital markets develop.

Our study contributes to the research on the relationship between unrelated diversification and performance, namely from the ICM perspective, in several ways. First, we shed light on the boundary conditions of the ICM hypothesis, the leading explanation of unrelated diversification (Ng, 2007). Consistent with prior research (Khanna and Palepu, 2000) that has found little evidence of diversification discount in emerging countries, where external capital market imperfections exist, our findings indicate that ICMs offer performance benefits to firms in financially weak contexts. We extend previous within-country longitudinal analyses (e.g. Khanna and Palepu, 2000; Siegel and Choudhury, 2012) using a unique dataset covering more than three decades.

Furthermore, from the ICM viewpoint, we provide an alternative theoretical perspective to explain the performance benefits of unrelated diversification, complementing the resource-based view of Ng (2007) and the process-based perspective of Strauch *et al.* (2019). Specifically, Ng's (2007) model suggests that unrelated diversification can provide a firm with new applications for its resources under conditions of market failure or incomplete markets and can increase performance due to first mover advantage in these new applications. According to Ng (2007), the value from unrelated diversification comes from leveraging resources to take advantage of incomplete markets. Our research enriches this theoretical argument, by also involving some degree of market failure in the form of weak financial markets. Indeed, our findings indicate an alternative source of performance that is derived from the efficiency of the ICM that provides opportunities for unrelated diversified firms due to the financing capabilities not available to focused firms, particularly under certain firm-level and industry-level conditions. Meanwhile, Strauch *et al.* (2019) examine the nature of the ICM in terms of the formality and comprehensiveness of the process of allocating resources. In particular, they find that the positive impact of formality and comprehensiveness on the efficiency of the ICM is enhanced with greater unrelated diversification. Our study extends the boundary conditions for Strauch *et al.*'s (2019) arguments by suggesting that the benefits of such efficiency of the ICM is also tied to the financial contextual conditions.

It is worth noting that recent studies related to emerging economies suggest caution when generalizing empirical evidence, given the uniqueness of each country's institutional environment (Carney *et al.*, 2011; Chittoor *et al.*, 2015; Siegel and Choudhury, 2012), which underscores an additional contribution of our research. We focus on Italy, which is unanimously classified as a developed country; however, data on the quality of the country's capital market indicate poorly developed financial institutions. Our findings are meaningful because they indicate that the dichotomy between developed and emerging economies is somewhat "artificial": each country's institutional environment should be analyzed along specific dimensions (Benito-Osorio *et al.*, 2012; Chittoor *et al.*, 2015) rather than through a "dichotomizing" approach. "Scholars and policy makers therefore need to avoid labeling national contexts with such terms as 'developed,' 'emerging,' and 'developing' and instead place greater emphasis on the varied effects of different types of institutions" (Carney *et al.*, 2011: 451). This approach may partially explain the conflicting results of prior studies on the performance effects of diversification across different institutional environments (Chittoor *et al.*, 2015). Our research highlights the need for additional finer-grained analysis when examining the effects of institutional context on the performance outcomes of strategies.

In addition, our study indicates that the outcomes of unrelated diversification are contingent upon industry- and firm-level financial factors, complementing the results of Belenzon *et al.* (2013) on the role of financial contingencies. Belenzon *et al.* (2013) show that less developed financial markets and industries' external financial dependence drive the formation of ICMs. We demonstrate that financial constraints and industry external financial dependence are two important contingencies that shape the benefits of ICMs, strengthening the positive relationship between unrelated diversification and performance in financially weak contexts. These results call attention to the industry- and firm-level financial conditions under which unrelated diversification is a performance-enhancing strategy (Hautz *et al.*, 2014; Mackey *et al.*, 2017).

We thus extend prior studies (e.g. Billett and Mauer, 2003) on the role of firm financial constraints as drivers of the value of an unrelated diversification strategy. Specifically, we demonstrate that not only firm financial constraints play a contingency role in the relationship between unrelated diversification and performance, but also that, in its turn, its effect size does depend on the industry external financial dependence. Furthermore, our supplementary analysis suggests that the effects firm financial constraints also depends upon the extent of capital market development. Hence, our findings also complement the work of Kuppuswamy and

Villalonga (2016) and Aivazian *et al.* (2019) who explored the benefits of unrelated diversification for firms facing challenging financial market conditions as a result of economic recessions.

Our findings also suggest opportunities for future research. In our robustness analyses, we offer some insights into how supply-side conditions impact the effects of unrelated diversification on performance in a financially weak context, focusing on conditions of supply-side constraints (i.e. during an economic crisis). In doing so, we provide a preliminary exploration of how supply-side concerns may impact the ICMs of unrelated diversified firms. An interesting opportunity for future research would be to examine the link between unrelated diversification and performance under differing supply-side conditions. For example, scholars may want to investigate how supply side constraints or abundance conditions impact the ICMs of diversified firms, leading to effects on performance. A second future research idea involves our moderating hypotheses. We find support that industry-level financial conditions can impact the benefits of ICMs. Scholars may want to examine the effects of other key industry-level attributes, such as the industry's pace of competitive advantage, as well as the industry's demand and technological uncertainty.

This research also provides several implications for practice. Managers may use unrelated diversification strategies to enhance firm financial performance, particularly when the external financial markets may be less efficient. However, they may overlook the contingencies that alter the benefits of such strategy. Our study alerts managers to the crucial role of industry-level financial factors. Indeed, our findings suggest that managers may maximize performance by adjusting the extent of firm unrelated diversification in accordance with firm financial constraints and market and industry external financial conditions.

Our study is not without limitations. First, we rely on single-country data. Thus, it will be important for future studies to attempt to replicate our findings in other countries with weak financial contexts. Second, at the institutional level, we focused on the development of the financial markets because our primary interest was in the institutional weaknesses in the financial context. Future research could expand this area of inquiry by focusing on other institutional weaknesses (i.e. labor markets, legal systems, etc.) to provide a more comprehensive analysis of the institutional environment and how it impacts the unrelated diversification-performance relationship. Third, we use an entropy measure of unrelated diversification, which, although largely consolidated, may not fully capture this type of corporate strategy. Future research could collect more fine-grained measures of "unrelatedness" to provide further insights into the diversification-performance relationship in financially weak contexts. Finally, as noted above, our sample focuses primarily on larger firms, although it does contain some variation. However, given this focus, our findings may be less generalizable to smaller firms. Scholars might want to examine our arguments utilizing a sample of smaller firms to determine whether unrelated diversification provides similar benefits to smaller firms in financially weak contexts.

Conclusion

This article has extended our understanding of the critical unrelated diversification-performance link by focusing on the boundary conditions of ICM advantages in financially weak contexts. In particular, we suggest that the outcomes of unrelated diversification are contingent upon industry- and firm-level financial factors. We tested our model using a unique dataset of 230 Italian firms over 31 years. Our results indicate that the performance effects of unrelated diversification change with varying industry-level external financial dependence and firm-level financial constraints. Furthermore, as capital markets develop, these performance effects appear to change. Thus, our study provides a more nuanced model of unrelated diversification, highlighting the importance of research on contextual-, industry- and firm-level factors together with the interplay across those factors, to better understand the outcomes of this strategy.

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Appendix 1

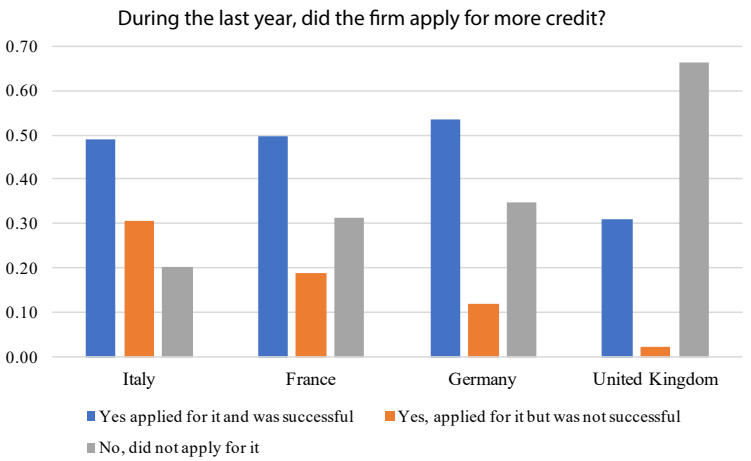

Figure A1.
Evidence of credit constraints from the EFIGE survey (2010)

Appendix 2

Year	Total number of firms in the sample	Total number of unrelated diversified firms in the sample
1980	58	18
1981	63	17
1982	69	19
1983	72	21
1984	73	21
1985	77	23
1986	77	23
1987	73	22
1988	70	22
1989	67	22
1990	86	27
1991	68	22
1992	72	22
1993	78	27
1994	92	30
1995	92	30
1996	91	29
1997	92	28
1998	94	30
1999	91	28
2000	93	28
2001	51	17
2002	48	16
2003	53	21
2004	79	25
2005	93	28
2006	97	25
2007	112	30
2008	83	20
2009	93	21
2010	60	15

Table A1. Distribution of sample firms across years

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